

Claims:

1. A tag format structure for generating a tag embedded with data and having a constant background pattern, the data and background pattern composed of dots within a bounding box, the tag
5 format structure comprising:
 - entries in the tag format structure corresponding to a position for each of the dots;
 - the tag format structure having a first parameter corresponding to the width of the bounding box, in dots;
 - the tag format structure having a second parameter corresponding to the height of the
10 bounding box, in dots;
 - the tag format structure having a third parameter corresponding to a number of bits in each
entry; and
 - the tag format structure having a fourth parameter corresponding to a number of data bits
associated with a tag.
 - 15 2. The tag format structure of claim 1, wherein:
the number of entries is the first parameter multiplied by the second parameter.
 3. The tag format structure of claim 1, wherein:
each entry is interpretable according to a selected bit, a first value of the selected bit indicating
20 that the entry is part of the background pattern and a second value indicating that the entry contains an
address.
 4. The tag format structure of claim 3, wherein:
the address, when so indicated by the second value, is an address to an array of tag data bits.
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 5. The tag format structure of claim 1, wherein the tag format structure is comprised of one or
more lines of entries and wherein:
 - any single entry in a line is part of a group of N identical entries; and
 - any single line is part of a group of N identical lines;
30 N being an integer denoting a scale factor.
6. The tag format structure of claim 1, wherein:
the tag format structure specifies dot positions having a relationship and the relationship takes
into account a redundancy encoding of the data.
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7. The tag format structure of claim 1, wherein:
the tag format structure specifies a macrodot array which forms the tag.

8. The tag format structure of claim 1, wherein:
the tag is produced using a tag encoder in which the tag format structure is implemented, the
encoder encoding fixed data together with tag specific data into the tag.
- 5 9. The tag format structure of claim 8, wherein:
the tag is printed with an infrared absorptive ink that can be read with a tag sensing device.
- 10 10. The tag format structure of claim 1, wherein:
the background pattern further comprises a locator component.
11. The tag format structure of claim 10, wherein:
the locator component is circular.
- 15 12. The tag format structure of claim 1, wherein:
each entry is interpretable independently without reliance on state information.
13. The tag format structure of claim 7, wherein:
the macrodot pattern is an array of dots which represents a single data bit but which is
20 structurally more complex than a simple scaling.
14. The tag format structure of claim 3, wherein:
the selected bit is a low order bit.
- 25 15. The tag format structure of claim 1, wherein:
entries are arranged with their inverses in adjacent pairs.
16. The tag format structure of claim 1, wherein:
double indirection is used so that data address entries point to a second array.
- 30 17. The tag format structure of claim 16, wherein:
the tag format structure comprises a line and the second array is stored within that line.
18. The tag format structure of claim 1, wherein:
35 the tag format structure is stored remotely or externally.
19. The tag format structure of claim 1, wherein:

the tag format structure is stored on a DRAM.

20. The tag format structure of claim 19, wherein:

the tag format structure is stored together with a second copy to facilitate both portrait and
5 landscape tag reproduction.